A FLOOR MOP CAPABLE OF USING BOTH SIDES

TECHNICAL FIELD

The present invention relates to a floor mop capable of using both sides without bending one's back, and a floor mop which is capable of being fixed by a magnetic force. More especially, the present invention relates to a floor mop capable of using both sides, which has a triple hinge connection structure which comprises a first rotation zone hinge-combined to a supporting pad, a second rotation zone hinge-combined to the first rotation zone, and a roller hinge-combined to the second rotation zone, thereby the floor mop is capable of rotating more smoothly around the supporting pad.

BACKGROUND ART

Generally, a mop for cleaning floor or classroom, living room, etc is formed of a stick having a length up to user's chest, and a floor cloth installed at the end of the stick. User of traditional mops makes use of those with back upright during using, but he should handle those mops with bending his back in case that he washes the mops or exchanges the floor cloth of the mops. Accordingly, waists of users like housewives or students are overstrained as cleaning is repeated, and have an unfavorable impression with grasping floor cloth made unclean. And unclean floor cloth is not good for sanitation of user of mops.

Also, traditional mops have a big cloth part so as to clean large area with cleaning once. Accordingly, those mops are efficient to clean large area, but have a deficiency that those cannot clean narrow area, cove, or corner part.

Various mops have been developed so as to solve above problems of traditional mops, but have a defect to be often changed or an inconvenience for changing floor cloth.

DETAILED DESCRIPTION OF THE INVENTION

As the present invention is invented for solving above problems, the primary object of the present invention is to provide a floor mop capable of using both sides.

The second object of the present invention is to provide a floor mop capable of using both sides, which is capable of easily changing a cleaning surface of the mop by using foot without bending one's back.

The third object of the present invention is to provide a floor mop capable of using both sides, of which a floor cloth is stably positioned and is not pushed, by increasing a surface for fixing the floor cloth.

To achieve these and other advantages and in accordance with the purpose of the present invention, there is provided a floor mop capable of using both sides comprising a supporting pad on which Velcro tapes are attached so that each floor cloth is attached on both surfaces, and having a rectangular planar structure, a rotation section having a first rotation zone of which a lower part is hinge-combined at side portion of the supporting pad for being capable of rotating, a second rotation zone which a rotation incision portion is formed at a central part of an upper part thereof and is incised therein toward the direction of the length, and which a lower part thereof is hinge-combined at an upper part of the first rotation zone for being capable of rotating thereby the second rotation zone is selectively attached on one of both surfaces of the supporting pad, and a roller which is oppositely connected to the rotation incision portion for being capable of rotating, a connection member which is formed perpendicularly with a center of the roller as a starting point, and which a stick is hinge-combined at an upper part thereof, and means for fixing said one of both surfaces of the supporting pad at the rotation section so that the stick is capable of pushing and pulling collectively the supporting pad and the rotation section, said means for

fixing being mounted at the rotation section and the supporting pad.

And it is preferable that the rotation incision portion further comprises protrusions therein which are inserted and hinge-combined at both sides of the roller.

Also, it is preferable that means for fixing comprises a permanent magnet and a steel portion to be combined with the permanent magnet by a magnetic force.

In addition, it is preferable that the permanent magnet and the steel portion are positioned oppositely at the second rotation zone and the supporting pad, respectively, or the permanent magnet and the steel portion are positioned oppositely at the roller and the supporting pad, respectively.

The present invention is not limited by the above structure, it is possible that the rotation incision portion of the second rotation zone comprises a pair of sockets which is oppositely formed at both sides with a predetermined gap and socket protrusions are inserted and hinge-combined at a center of one surface of the hinge combination sections correspondingly inside of said each socket. Here, it is preferable that the permanent magnet is mounted on an outside periphery of the connection shaft of the roller at a position which is symmetric to the connection member and is installed inside of the incision portion formed toward the direction of the axis of the connection shaft.

In accordance with a floor mop capable of using both sides according to the present invention, a user is able to use both surfaces of the floor cloth since the floor mop is capable of being selectively attached on one of both surfaces of the floor cloth. The present invention has a feature that a rotation of the roller onto both surfaces of the floor cloth is made smoothly by a triple hinge combination structure.

Also, the present invention is capable of extending the exchange period of the floor cloth as twice by using both sides.

In addition, the present invention is capable of easily changing a cleaning surface

of the mop by using foot without bending one's back. Accordingly, the present invention has an effect that waist of a user is not overstrained and a user feels less fatigued though he is cleaning for a long time.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention.

In the drawings:

Fig. 1 is a schematic view of a first embodiment of a floor mop capable of using both sides according to the present invention.

Fig. 2 is a schematic view of a first rotation zone and a supporting pad of a floor mop capable of using both sides of Fig. 1.

Fig. 3 is a side view of a floor mop capable of using both sides of Fig. 1.

Fig. 4 is a schematic view of a second rotation zone and a roller of a floor mop capable of using both sides of Fig. 1.

Fig. 5 is a using state view of a floor mop capable of using both sides of Fig. 1.

Fig. 6 is a schematic view of a second embodiment of a floor mop capable of using both sides according to the present invention.

Fig. 7 is a side view of a floor mop capable of using both sides of Fig. 6.

Fig. 8 is a back plain view of a floor mop capable of using both sides of Fig. 6.

Fig. 9 is a sectional view of a roller and a supporting pad of a floor mop capable of using both sides of Fig. 6.

Fig. 10 is a sectional view of a roller and a supporting pad of a floor mop capable

of using both sides according to a third embodiment of the present invention.

Fig. 11 is a using state view of a floor mop capable of using both sides of Fig. 6 and Fig. 10.

Fig. 12 is a schematic view of a fourth embodiment of a floor mop capable of using both sides according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

A floor mop capable of using both sides according to the present invention will be described hereinafter with reference to the accompanying drawings.

Fig. 1 is a schematic view of a first embodiment of a floor mop 100 capable of using both sides according to the present invention. And Fig. 2 is a schematic view of a first rotation zone 20 and a supporting pad 10 of a floor mop 100 capable of using both sides of Fig. 1. In addition, Fig. 3 is a side view of a floor mop 100 capable of using both sides of Fig. 1. Also, Fig. 4 is a schematic view of a second rotation zone 30 and a roller 40 of a floor mop 100 capable of using both sides of Fig. 1.

As shown in Fig. 1, Fig. 2, Fig. 3 and Fig. 4, a floor mop 100 has a rotation structure for fixing selectively both sides of a floor cloth 90 attached to the supporting pad 10. The rotation structure has a permanent magnet 80 to press and fix the floor cloth 90 by a magnetic force.

Here, the rotation structure is formed of a rotation section 50, wherein the rotation section 50 has a connection structure which comprises a first rotation zone 20 hinge-combined with the supporting pad 10, a second rotation zone 30 hinge-combined with the first rotation zone 20, and a roller 40 hinge-combined with the second rotation zone 30, thereby the rotation structure is capable of rotating smoothly around the supporting pad 10.

And velcro tape 12 is attached on the supporting pad 10 for the exclusive floor

cloth 90 being fixed thereon. Two water passage portions 11 are penetratively formed at both sides of the supporting pad 10 so that water of the exclusive floor cloth 90 is fairly drained. The water passage portions 11 are symmetric with each other and have rectangular configurations. Eight velcro tapes 12 are preferably positioned around the water passage portions 11 at the vicinity of peripheries of both surfaces of the supporting pad 10.

And a first rotation zone 20 is installed at the periphery of one side of the supporting pad 10. One surface of the first rotation zone 20 is hinge-combined at one side of the supporting pad 10, thereby the first rotation zone 20 is capable of rotating up to approximate 180° around the supporting pad 10. A second rotation zone 30 is hinge-combined at an upper part of the first rotation zone 20.

Two pairs of four link connection portions 31 are protruded at a lower part of the second rotation zone 30. Each link connection portion 31 is inserted and combined at an upper part of the first rotation zone 20, thereby each link connection portion 31 is capable of rotating.

The second rotation zone 30 has a rectangular planar structure having relatively a smaller size than the supporting pad 10. Ruggedness section 32 is formed on both surfaces of the second rotation zone 30 and is protruded multitudinously in a row to the direction of the length. This is for preventing shoes from sliding when a user tries changing one surface of the floor cloth 90 to the other surface and for holding the floor cloth 90 so that the floor cloth 90 does not slide.

A rotation incision portion 33 is formed at an upper part of the second rotation zone 30 and is incised to the direction of the length with a rectangular structure. Here, protrusions 33A are protruded oppositely on both sides of the rotation incision portion 33.

A roller 40 is hinge-combined at inside of the rotation incision portion 33. The

roller 40 comprises a pair of hinge combination sections 41 formed at both sides like a wheel, and a connection shaft 42 to connect two hinge combination sections 41 respectively. The connection shaft 42 has a smaller diameter than that of the hinge combination sections 41.

Here, a hinge hole 41A is formed at each end of the hinge combination sections 41 so that the roller 40 rotates smoothly with the protrusions 33A of the rotation incision portion 33 as a center axis, and has a relatively larger diameter than protrusions 33A.

As configured above, the second rotation zone 30 is capable of rotating in an angular range of about 360° with the supporting pad 10 as a center axis by rotations of the first rotation zone 20 and the roller 40. In accordance with this, the second rotation zone 30 has a structure selectively attached on both sides of the supporting pad 10. Accordingly, if the second rotation zone 30 is attached on one surface of the supporting pad 10, the first rotation zone 20 is erected approximately perpendicularly and the second rotation zone 30 is laid down approximately horizontally.

In addition, a connection member 60 is collectively formed at the connection shaft 42 of the roller 40 perpendicularly. The connection member 60 has a structure of which a width is lessened to the direction of the height. A lower part of a stick 70 is hinge-combined, thereby the stick 70 is capable of rotating with the roller 40 as an axis.

This stick 70 has a grip 71 formed of plastics on an upper part, which a user is able to grasp and push the floor mop 100. And a hole 71A is formed on an upper part of the grip 71 so that the floor mop 100 is capable of being hung by a nail, and the like.

The present invention needs means for pressing and fixing the floor cloth 90 between the supporting pad 10 and the second rotation zone 30 in accordance with a selective attachment of the second rotation zone 30. For this, a permanent magnet 80 and a steel portion 81 are installed at the second rotation zone 30 and the supporting pad 10,

respectively. That is, the permanent magnet 80 is fixed on both surfaces of the second rotation zone 30, and the steel portion 81 is fixed on the supporting pad 10 at a position corresponding to the location of the permanent magnet 80. However, positions of the permanent magnet 80 and the steel portion 81 are not limited like above, the positions may be exchanged each other.

Accordingly, if selective one of both surfaces of the supporting pad 10 is attached to one surface of the second rotation zone 30, the floor cloth 90 is capable of being pressed and fixed between the second rotation zone 30 and the supporting pad 10 by a magnetic force of the permanent magnet 80 and the steel portion 81.

Fig. 5 is a using state view of a floor mop capable of using both sides of Fig. 1. As shown in Fig. 5, a floor cloth 90 of a floor mop 100 is installed on both surfaces of the supporting pad 10 and fixed by velcro tape 12. A stick 70 is mounted at one surface of the floor cloth 90, thereby a user is able to push the stick 70 and clean a selective position with another surface of the floor cloth 90 of the floor mop 100 attached on a ground.

If a user wishes to use the other surface of the floor cloth 90 since one surface is made unclean, he lifts the stick 70 while stepping on the supporting pad 10 with a larger force than the magnetic force, thereby he is able to lift up the roller 40 and rotate the supporting pad 10 to the other surface. Then, he steps on the ruggedness section 32 of the second rotation zone 30 so that the second rotation zone 30 is reliably attached on the other surface of the floor cloth. In accordance with this, a magnetic force between the permanent magnet 80 and the steel portion 81 is applied, thereby the floor cloth is pressed and fixed. The floor mop 100 is collectively moved by the magnetic force of the permanent magnet 80.

Fig. 6 is a schematic view of a second embodiment of a floor mop capable of using both sides according to the present invention, and Fig. 7 is a side view of a floor mop

capable of using both sides of Fig. 6. Fig. 8 is a back plain view of a floor mop capable of using both sides of Fig. 6. As shown in Fig. 6, Fig. 7, and Fig. 8, a floor mop capable of using both sides according to the present invention has a rotation structure for selectively pressing and fixing both sides of the floor cloth 90 to the supporting pad 10 at which the floor cloth 90 is mounted. The rotation structure is formed of a permanent magnet 80 to press and fix the floor cloth 90 by magnetic force.

Here, the rotation structure is formed of a rotation section 50, wherein the rotation section 50 has a connection structure which comprises a first rotation zone 20 hinge-combined with the supporting pad 10, a second rotation zone 30 hinge-combined with the first rotation zone 20, and a roller 40 hinge-combined with the second rotation zone 30, thereby the rotation structure is capable of rotating smoothly.

The first rotation zone 20 is mounted at a curvature portion of a central periphery of one side of the supporting pad 10 attached on the floor cloth 90 to the direction of the length. This first rotation zone 20 is capable of rotating with the supporting pad 10 as the axis since a lower part of the first rotation zone 20 is hinge-combined with the periphery of the supporting pad 10.

And a second rotation zone 30 is hinge-combined with an upper part of the first rotation zone 20. An upper part of the first rotation zone 20 and a lower part of the second rotation zone 30 are engaged by repetitive protrusions and corresponding depressions.

Sockets 34 are formed opposite at both upper sides of the second rotation zone 30 symmetrically, which have hemisphere shapes. Socket protrusions 34A are oppositely protruded at the center of inside surface.

A roller 40 is installed between the sockets 34. The roller 40 comprises a pair of hinge combination sections 41 formed on both sides of the roller as a wheel shape, and a connection shaft 42 connecting the hinge combination sections 41 with a relatively smaller

diameter than the hinge combination sections 41.

Here, each hinge combination section 41 is inserted in each socket 34 corresponding thereto. Each socket protrusion 34A is hinge-combined by being inserted to a central groove of one surface of each hinge combination section 41. Accordingly, the roller 40 is capable of rotating with the sockets as an axis.

Accordingly, as described above, the roller 40 is capable of rotating in an angular range of about 360° with the supporting pad 10 as the center axis, and has a structure selectively attached on both sides of the supporting pad 10. Accordingly, if the roller 40 is attached on one surface of the supporting pad 10, the first rotation zone 20 is erected approximately perpendicularly and the second rotation zone 30 is laid down approximately horizontally.

In addition, a connection member 60 is formed at the connection shaft 42 of the roller 40 with perpendicular to the axis of the shaft. The connection member 60 has a structure of which a width is lessened to the direction of the height. A lower part of a stick 70 is hinge-combined with an upper part of the connection member 60, thereby the stick 70 is capable of rotating with perpendicular to the rotation direction of the rotation section 50.

The present invention needs means for pressing and locking up the floor cloth 90 between the supporting pad 10 and the roller 40 in accordance with a selective attachment of the roller 40. For this, a permanent magnet 80 and a steel portion 81 are installed at the roller 40 and the supporting pad 10, respectively. That is, the permanent magnet 80 is fixed on lower parts of both sides of the roller 40, and the steel portion 81 is fixed on the supporting pad 10 at a position corresponding to the location of the permanent magnet 80.

Accordingly, if selective one of both surfaces of the supporting pad 10 is attached to one surface of the roller 40, the floor cloth 90 is capable of being pressed and fixed

between the roller 40 and the supporting pad 10 by a magnetic force of the permanent magnet 80 and the steel portion 81.

Fig. 9 is a sectional view of a roller and a supporting pad of a floor mop capable of using both sides of Fig. 6. As shown in Fig. 9, the roller 40 is formed as a shaft with wheels, and comprises a hinge combination section 41 and a connection shaft 42. Here, the hinge combination section 41 has a wheel shape inserted into a socket 34 of the second combination zone 30, and the connection shaft 42 has a shaft shape connecting each hinge combination section 41.

Here, a protrusion 34A of the socket 34 is inserted at a center of one surface of the hinge combination section 41, thereby the roller 40 is capable of rotating. And, ball bearings are mounted at periphery of the hinge combination section 41 to the radial direction thereof so that a rotation structure of the roller 40 is strengthened.

The peripheries of the hinge combination section 41 corresponding to the positions of the ball bearings are hollowed for ball bearings combination structure like above described. Accordingly, side sections of the socket 34 are point-contacted corresponding to the bearings, thereby a frictional coefficient between the socket 34 and the hinge combination section 41 is relatively lessened.

An incision portion 43 is formed to the axial direction on the connection shaft 42. A permanent magnet 80 is inserted at the incision portion 43 with being exposed externally. Steel portions 81 are fixed on both sides of the supporting pad 10 corresponding to the position of the permanent magnet 80. Accordingly, the permanent magnet 80 is attached to each steel portion 81 by a magnetic force with a selective rotation.

If a user wishes to use the other surface of the floor cloth 90 since one surface is made unclean, he lifts the stick 70 while stepping on the supporting pad 10 with a larger force than the magnetic force, thereby he is able to lift up the roller 40 and rotate the

supporting pad 10 to the other surface so that the roller 40 is attached on the other surface of the floor cloth 90. Here, since a steel portion 81 is also formed on the other surface correspondingly, the floor cloth 90 is capable of being pressed and fixed.

If a user wishes to exchange the floor cloth 90 with a new one, he lifts the roller 40 by lifting the stick 70, thereby the rotation section 50 is detached from the supporting pad 10. After exchanging the floor cloth 90, he recovers the rotation section 50 by moving the stick 50, thereby the exchanged floor cloth 90 is attached to the roller 40. Accordingly, the floor cloth 90 is pressed and fixed by a magnetic force between the permanent magnet 80 and the steel portion.

Fig. 10 is a sectional view of a roller and a supporting pad of a floor mop capable of using both sides according to a third embodiment of the present invention. As shown in Fig. 10, the structure of the third embodiment is similar to that of the second embodiment. A difference is that each incision portion 43 is respectively formed at a lower part and an upper part of each hinge combination section 41, and that a permanent magnet 80 is fixed at each incision portion 43, and that totally four magnets 80 are inserted and fixed. Here, each steel portion 81 is fixed to the corresponding position attached to the roller 40 on both surfaces of the supporting pad 10.

Accordingly, a floor cloth 90 is pressed and fixed between the roller 40 and the supporting pad 10 by a magnetic force of the permanent magnet 80 and the steel portion 81.

Fig. 11 is a using state view of a floor mop capable of using both sides of Fig. 6 and Fig. 10. As shown in Fig. 11, a floor cloth 90 is mounted at the floor mop 100 in accordance with periphery of a supporting pad 10 and is fixed by a velcro tape 12. Accordingly, one surface of the floor cloth 90 is pressed and fixed by a magnetic force between the permanent magnet 80 installed at the connection shaft 42 or the hinge combination section 41 of the roller 40 and the steel portion 81 fixed on both surfaces of

the supporting pad 10 corresponding to a position of the permanent magnet 80.

A stick 70 is positioned at one surface of the fixed floor cloth 90. In accordance with that, a user is able to push the stick 70 to a selective direction after adhering the other surface of the floor cloth 90 and uses the floor mop 100. If a user wishes to use the other surface of the floor cloth 90 since one surface is made unclean, he grasps the stick 70 while stepping on the supporting pad 10 with a larger force than the magnetic force, thereby he is able to lift up the roller 40 by separating a magnetic combination between the roller 40 and the supporting pad 10. And he is able to rotate the rotation section 50 to the other surface of the supporting pad 10 and combine between the steel portion 81 of the other surface and the permanent magnet 80 by a magnetic force, thereby the other surface of the floor cloth 90 is pressed and fixed. Accordingly, the stick 70 is positioned at the other surface of the floor cloth 90, and a relatively clean surface is adhered on the ground and used.

Fig. 12 is a schematic view of a fourth embodiment of a floor mop capable of using both sides according to the present invention. As shown in Fig. 12, a structure of the fourth embodiment is similar to that of the second embodiment. But, a roller 40 is formed of a cylindrical shape having a constant diameter under the condition that the roller is not divided by a hinge combination section 41 and a connection shaft 42, which is different from other embodiments. This roller 40 has a diameter that one surface of the roller 40 contacts on the bottom plate, is hinge-combined at protrusions 33A formed at a rotation incision 33.

Here, a permanent magnet 80 is mounted on a lower part of the roller 40 which is symmetric to the connection member 60 or on both surfaces of the supporting pad 10 corresponding to said lower part of the roller 40, and a steel portion 81 is fixed on a position opposite to the permanent magnet 80. The permanent magnet 80 and the steel

portion 81 like above organized press and fix the floor cloth 90 installed between the roller 40 and the supporting pad 10.

INDUSTRIAL APPLICABILITY

A floor mop capable of using both sides according to the present invention is capable of using another permanent magnet having a contrary polarity of the permanent magnet according to the present invention instead of the steel portion, and of changing the positions between the steel portion and the permanent magnet.

And the present invention is capable of using a press button, clamp, and the like as means for fixing the floor cloth mounted on the supporting pad, instead of the velcro tape.

The supporting pad and the floor cloth mounted thereon may be changed to a suitable structure for cleaning if a cleaning area is small, instead of the rectangular shape. For example, a direction to push the floor mop may be set to the direction of the length. The shapes of the supporting pad and the floor cloth may be selected one of a perfect square, a circle, a pentagon, a hexagon, etc.

In addition, the floor cloth is preferably formed of cottons or micro-fibers.

And needle bearings, general journal bearings, etc may be installed at the hinge combination section instead of ball bearings. Protrusions may be formed on one surface corresponding to the hinge combination section and grooves may be formed inside of the socket, thereby the present invention is hinge-combined as above, instead of forming protrusions at the socket.

In addition, the stick may be a multi-stage combination structure so as to adjust the length.

As the present invention may be embodied in several forms without departing

from the spirit or essential characteristics thereof, it should also be understood that the above-described embodiments are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the meets and bounds of the claims, or equivalence of such meets and bounds are therefore intended to be embraced by the appended claims.